Daniel Schwartz
Social Network Analysis 09-10-2022

Assignment 7

1.
    a. Density: 0.037
    b. Rows: 62
    c. Cols: 40
    d. Components:

	ModeA	ModeB	Both
Number of nodes for mode A, B and both	62	40.000000	102.000000
Number of components	1	2.000000	2.000000
Min componentsize	62	1.000000	1.000000
Max componentsize	62	39.000000	101.000000
ComponentRatio	1	0.974359	0.990099
Mean of componentsizes	62	20.000000	51.000000
Median of componentsizes	62	20.000000	51.000000

2.
    a. Composer projection

```
> ComposerProj[1:10, 1:10]
    C1 C2 C3 C4 C5 C6 C7 C8 C9 C10
C1  19  3  2  1  1  1  0  1  0   0
C2   3  6  1  0  0  0  0  0  0   0
C3   2  1  3  1  1  2  1  0  0   0
C4   1  0  1  2  0  1  1  0  0   0
C5   1  0  1  0  3  2  0  0  0   0
C6   1  0  2  1  2  4  2  0  0   0
C7   0  0  1  1  0  2  2  0  0   0
C8   1  0  0  0  0  0  0  2  0   0
C9   0  0  0  0  0  0  0  0  3   0
C10  0  0  0  0  0  0  0  0  0   2
```

    b. C17 and C31 worked with the same producer most often, a total of 5 times

3.

Degree:

```
> ComposerDegree[1:10, ]
    Degree     nDegree
C1      19 0.30645161
C2       6 0.09677419
C3       3 0.04838710
C4       2 0.03225806
C5       3 0.04838710
C6       4 0.06451613
C7       2 0.03225806
C8       2 0.03225806
C9       3 0.04838710
C10      2 0.03225806
> ProducerDegree[1:10, ]
    Degree nDegree
P1       3   0.075
P2       5   0.125
P3       3   0.075
P4       3   0.075
P5       3   0.075
P6       3   0.075
P7       2   0.050
P8       4   0.100
P9       2   0.050
P10      2   0.050
```

Composers C1 and C17 are most central
Producers P33 and P53 are most central

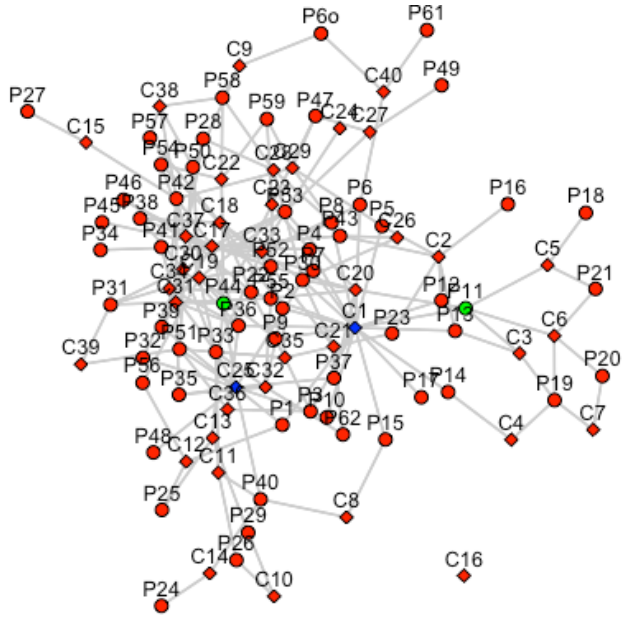
Betweenness:

```
> Collab_Betweenness_Composers[1:10]
        C1         C2         C3         C4         C5         C6         C7         C8         C9        C10
1617.045372  167.788302  101.943486   30.888118  144.900483  218.623174    2.438034   25.663445   69.544181    9.899078
> Collab_Betweenness_Producers[1:10]
       P1        P2        P3        P4        P5        P6        P7        P8        P9       P10
179.32414 152.82580  44.05503 104.14619  97.68594 242.87235  50.40049 118.46782  61.85336  57.78321
```

Composers C1 and C25 are most central
Producers P11 and P44 are most central

4.

Producers are green
Consumers are blue



5.

Subgroup density table:

```
          0         1
0 0.05089606 0.08641975
1 0.06072106 0.35294118
```

Bipartite network